

AMENDED CLAIMS IN U.S. SERIAL NO. 09/536,735

(marked up set of amended claims showing deletions
by ~~strike through~~ and additions by underlining)

9. (twice amended) A process for the isolation of nucleic acids from a sample comprising the following steps:

- (a) applying at least one nucleic acid sample to a non-siliceous surface;
- (b) immobilizing the nucleic acids of the nucleic acid sample on the non-siliceous surface in the presence of a compound selected from the group consisting of a salt of a metal and/or ammonium cation with a mineral acid, a salt of a mono or polybasic or polyfunctional organic acid with an alkaline or alkaline-earth metal, a hydroxy-functional compound of an aliphatic or acyclic saturated or unsaturated hydrocarbon, a phenol or polyphenol, a chaotropic agent, and combinations thereof, wherein the nucleic acids are reversibly immobilized on the non-siliceous surface ~~membrane~~;
- (c) releasing the immobilized nucleic acids from the non-siliceous surface with an elution agent, characterized in that the release takes place at a temperature T, whereby $10^{\circ}\text{C} \geq T \geq T_{\text{S,EM}}$, and $T_{\text{S,EM}}$ equals the freezing point of the elution agent.

11. (amended) The process according to Claims 9, characterized in that the release takes place at temperature T, in which $10^{\circ}\text{C} \geq T \geq 0^{\circ}\text{C}$.

12. (amended) The process according to Claims 9, characterized in that the release takes place at temperature T, in which $10^{\circ}\text{C} \geq T \geq -5^{\circ}\text{C}$.

20. (amended) The process according to Claim 9 ~~any one of Claims 1, 9 or 14~~, characterized in that after the release step at least one additional step takes place:

- performing at least one chemical reaction with the nucleic acids.

37. (amended) The process according to Claim 9 ~~any one of Claims 9 or 14~~, characterized in that the sample is introduced onto the top of the surface.

38. (amended) A process according to Claim 9 ~~any one of Claims 1, 9, or 19~~, characterized in that the immobilized nucleic acids are subjected to a washing step which takes place with at least one washing buffer after the immobilization and before any release steps.

39. (amended) The process according to Claim 38, characterized in that the washing step consists of the following steps for each washing buffer:

- applying a predetermined quantity of washing buffer on the non-siliceous surface; and
- passing the washing buffer through the non-siliceous surface.

40. (amended) The process according to Claim 9 ~~any one of Claims 1, 9, or 19~~, characterized in that an aqueous salt or buffer solution is used to release the nucleic acids.

41. (amended) The process according to Claim 9 ~~any one of Claims 1, 9, or 19~~, characterized in that water is used to release the nucleic acids.

42. (amended) The process according to Claim 9 ~~one of Claims 1, 9, or 14~~, characterized in that the application and immobilization of the nucleic acids includes the following steps:

- mixing at least one nucleic acid-containing sample with an immobilization buffer;
- applying said at least one nucleic acid-containing sample with the immobilization buffer to the non-siliceous surface ~~or membrane~~; and
- passing the liquid components through the non-siliceous surface in essentially the same direction they were added.

43. (amended) The process according to Claim 9 ~~any one of Claims 1, 9, or 19~~, characterized in that at least one of the steps is carried out by an automatic device, in a fully automatic manner.

46. (amended) The process according to Claim 9 ~~any one of Claims 1, 9, or 19~~, characterized in that aqueous salt solutions of metal and/or ammonium cations with mineral acids are used to immobilize the nucleic acids.

48. (amended) The process according to Claim ~~46~~ 47, wherein the aqueous salt solution is selected from the group consisting of ~~characterized in that~~ sodium halides, lithium halides, ~~and/or~~ potassium halides, ~~and/or~~ magnesium sulfate, and combinations thereof ~~are used to immobilize the nucleic acids.~~

49. (amended) The process according to Claim 9 ~~any one of Claims 1, 9, or 19~~, characterized in that aqueous solutions of salts of mono or polybasic or polyfunctional organic acids with alkaline or alkaline-earth metals are used to immobilize the nucleic acids.

54. (amended) The process according to Claim 9 ~~any one of Claims 1, 9, or 19~~, characterized in that hydroxy-functional compounds of aliphatic or acyclic saturated or unsaturated hydrocarbons are used for the immobilization of the nucleic acids.

58. (amended) The process according to Claim 9 ~~any one of Claims 1, 9, or 19~~, characterized in that a phenol or polyphenol is used for the immobilization of the nucleic acids.

59. (amended) The process according to Claim 9 ~~any one of Claims 1, 9, or 19~~, wherein at least one chaotropic agent is used for the immobilization of the nucleic acids.

66. (amended) The process according to Claim 9 ~~any one of Claims 9, 14, or 19~~, characterized in that the non-siliceous surface is a membrane.

73. (amended) The process according to Claim ~~66~~ 66, wherein the membrane is a hydrophilic membrane or a membrane made hydrophilic by pre-treatment.

75. (amended) The process according to Claim 66 ~~any one of Claims 9, 14, or 19~~, characterized in that the membrane has a pore diameter of 0.001 to 50 micrometer.

112. (amended) The process according to Claim 9 ~~A method for isolating nucleic acids comprising contacting a sample containing nucleic acids with~~ wherein said non-siliceous surface comprises a material ~~material~~ selected from the group consisting of cellulose acetate; non-

carboxylized, hydrophobic polyvinylidene fluoride; and massive, hydrophobic polytetrafluoroethylene.

125. (new) The process according to Claim 9 for the isolation of nucleic acids from a sample further comprising, prior to step (a), the step of adjusting said at least one nucleic acid sample to binding conditions that permit reversible immobilization to a non-siliceous surface, and wherein there is a pretreatment of said at least one nucleic acid sample before and/or after adjusting the binding conditions of said at least one nucleic acid sample.

126. (new) The process according to Claim 125, wherein said pretreatment is selected from the group consisting of salting out, filtration, centrifugation, enzymatic treatment, temperature adjustment, precipitation of non-nucleic acid material, extraction, homogenization, mechanical reduction, binding of contaminants to surfaces, and combinations thereof.

127. (new) The process according to Claim 125, wherein said binding conditions permit reversible immobilization of RNA.

128. (new) The process according to Claim 125, wherein said binding conditions permit reversible immobilization of DNA.

129. (new) The process according to Claim 9, wherein said non-siliceous surface is a material in the form selected from the group consisting of a membrane, a granulate, and a fiber.